REMARKS

I. Status of the claims

In response to the Office Action dated April 27, 2011, Applicants respectfully request consideration of the claims provided herein. Claims 1-52, 56, 62, 64. 65, 74-77, 81, 82, 86-88, 90, 92, 96, 99, 102-105, 109, 113-115, 119, 128-131, 135, 142-144, 150, 151, 156, 161, 162, 165-168, and 173 have been canceled. Claims 53, 55, 63, 66-68, 72, 73, 79, 83, 85, 91, 93-95, 100, 101, 107, 108, 110, 112, 118, 120-122, 126, 127, 133, 134, 145-147, 149, 155, 157-159, 163,-164, 169, 170, 172, and 174 have been amended. Following the amendment, claims 53-55, 57-61, 63, 66-69, 72, 73, 78-80, 83-85, 89, 91, 93-95, 97, 98, 100, 101, 106-108, 110-112, 116-118, 120-124, 126, 127, 132-134, 136-141, 145-149, 152-155, 157-160, 163, 164, 169-172, and 174-176 are pending and under examination.

II. Support for the amendments

The amendments provided herein do not constitute new matter. Support for the amended and new claims can be found in the claims and specification as filed including, *inter alia*, in the claims as originally filed. Cancellation of any subject matter herein does not constitute an admission that the subject matter is unpatentable for any reason. Applicants submit that no new matter has been introduced.

Basis for the amended claims can be found throughout the specification. Specifically, claims 53, 55, 63, 66-68, 72, 73, 79, 83, 85, 91, 93-95, 100, 101, 107, 108, 110, 112, 118, 120-122, 126, 127, 133, 134, 145-147, 149, 155, 157-159, 163,-164, 169, 170, 172, and 174 have been amended for technical clarity.

III. Formal matters

Applicant thanks the examiner's note that the informalities of claim 82. The typographical error has been removed.

IV. Double Patenting

Claims 53-55, 57-61, 63, 66-69, 71-73, 78-80, 83-85, 89, 91, 93-101, 106-108, 110-112, 116-118, 120-127, 132-134, 136-149, 152-155, 157-160, 162-164, and 169¬176 stand rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable over claims 1-14 of U.S. Patent No. 6,632,429 ("the '429 patent") in view of US 6,020,310 to Beck et al. ("*Beck*") and Bode et al. (Clin Biochem. 1986;19:333-37("*Bode*"), and as evidenced by Schreck & Williams (Res Dev Disabil. 2006; 27:353-363) ("*Schreck*"). Applicant respectfully disagrees.

Applicant respectfully requests that the Examiner hold the present double patenting rejection in abeyance until the present application is deemed ready for allowance.

V. Rejection under 35 USC § 103

1. Claims 136-138, 142-147, 153-155, 162-164, and 169-176

Claims 136-138, 142-147, 153-155, 162-164, and 169-176 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Beck* as evidenced by *Schreck* and by *Levy* et al. (Biol Psychiatry, 2007; 61:492-497) ("*Levy*"), and in view of US 4,079,125 to Sipos ("*Sipos*(a)") and US 5,750,104 to Sipos ("*Sipos*(b)"). Applicant respectfully disagrees.

A. The references do not teach a method of treating autism in an individual by administering digestive enzymes to such individual.

The pending claims are directed to methods of treating autism in an individual by administering digestive enzymes to such individual. This is not taught or suggested by any of the references cited by the Office Action. Applicant notes that claims 63, 91, 118, and 155 have been amended to recite in part "administering the pharmaceutical composition comprising digestive enzymes comprising a lipase, an amylase and a protease." Applicant submits that this element is not disclosed or rendered obvious by any of the cited art.

The Office Action asserts on page 8:

> In summary, Beck discloses a method for treating autistic individuals, particularly those exhibiting gastrointestinal problems, comprising

> administering one or more doses of secretin, wherein the secretin administration causes the release of digestive enzymes and results in improvements in various symptoms. (Emphasis added).

Applicant respectfully disagrees because *Beck* does not disclose or suggest improvements in various symptoms of autism due to the release of digestive enzymes caused by the administration of secretin, as the Office Action asserts.

Beck discloses a method for the treatment of the symptoms of autistic syndromes by administering secretin. See Abstract. *Beck* also discloses the observation of gastrointestinal abnormalities in children with autistic behavior, including inflammation in the esophagus.

However, *Beck* discloses that "the duodenal fluid enzyme activities are within the normal range" among all the children examined. Col. 16, lines 42- 43. The enzymes tested in the duodenal fluid included digestive enzymes of both the small intestine and pancreas, including lactase, maltase, sucrose, glucoamylase, amylase, lipase, trypsin and chymotrypsin. *See Beck*, col. 10, ll. 15-17. *Beck* did not detect abnormal levels of proteases (i.e. trypsin and chymotrypsin), amylase, and lipase.

More specifically, *Beck* discloses case studies of autistic children with history of diarrhea. However, in these children only carbohydrate digestive enzymes deficiencies were found in a portion of the group examined: "abnormal levels in at least one of the carbohydrate digestive enzymes was [sic] found in 5/12 children (41.6%). The most frequent abnormality was hypolactasia (abnormally low lactase leve)." Col. 16, ll. 50-54 (emphasis added). *Beck* does not disclose deficiency in any other digestive enzymes tested, such as proteases (i.e. trypsin and chymotrypsin), amylase, and lipase.

Thus, taken its disclosure as a whole, *Beck* does not disclose or render obvious providing digestive enzymes comprising a lipase, an amylase and a protease to a subject. Further, *Beck* does not provide the suggestion or motivation to test chymotrpysin, a protease, to determine whether these is digestive enzymes deficiency in autistic individual, or providing digestive enzymes to autistic individual based on the test result of chymotrypsin, a protease. This deficiency is not cured by *Schreck*, *Levy*, *Sipos*(a), or *Sipos*(b).

Applicant notes neither *Schreck* nor *Levy* are prior art since they were published well after the instant filing date. And in any case, neither *Schreck* nor *Levy* teaches methods of treating autism in an individual by administering digestive enzymes to such individual.

Sipos(a), and *Sipos*(b) disclose compositions comprising digestive enzymes. See Abstract. However, *Sipos*(a), and *Sipos*(b) does not disclose methods of treating autism in an individual by administering digestive enzymes to such individual as the pending claims require.

B. *Beck* teaches away from providing digestive enzymes to an autistic individual and there is not a reasonable expectation of success by combining *Beck* with *Sipos* (a) or *Sipos* (b) because *Beck* suggests that secretin alleviates the symptom of autism by acting on the brain directly.

Applicant submits that, a skilled artisan, upon reading *Beck* as a whole, would appreciate that *Beck* teaches away from providing digestive enzymes to an autistic individual based on the test result of abnormal chymotrypsin as recited by the pending claims.

As stated by M.P.E.P. §2141.02 VI

> A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

Beck discloses that his reason for administering secretin to an autistic individual was the discovery that the "gastrointestinal/brain hormone secretin has a beneficial therapeutic effect on the gastrointestinal and brain function in certain autistic children" and the "evidence for an association between brain and gastrointestinal dysfunction in autistic children." Col. 4, l. 66 to col. 5, l. 4.

Therefore, according to *Beck*, the reason that secretin could alleviate the symptom of autism was secretin's effect on the brain and the gastrointestinal function. As such, a skilled artisan, upon reading *Beck*, would not be able to predict how to treat a symptom of

autism in autistic individuals using a composition that was not known to effect the brain, and be led away from using such composition to treat a symptom of autism in autistic individuals. Therefore such an artisan would not predict that a pharmaceutical composition comprising digestive enzymes comprising a lipase, an amylase and a protease could be used as claimed and has no reasonable expectation of success by doing so.

Because *Beck*, *Schreck*, *Levy*, *Sipos*(a), and *Sipos*(b) in combination do not provide the suggestion or motivation to administer a composition comprising digestive enzymes to treat autistic individuals, and *Beck* in fact teaches away from it, and there is no reasonable expectation of success by combining *Beck* with *Sipos* (a) or *Sipos* (b), the pending claims are not obvious. Applicant respectfully requests the rejections be withdrawn.

2. Claims 53-55, 57-61, 63, 66-69, 71-73, 78-80, 83-85, 89, 91, 93-101, 106-108, 110-112, 116-118, 120-127, 132-134, 139-141, 148, 149, 152 and 157-160

Claims 53-55, 57-61, 63, 66-69, 71-73, 78-80, 83-85, 89, 91, 93-101, 106-108, 110-112, 116-118, 120-127, 132-134, 139-141, 148, 149, 152 and 157-160 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Beck* et al. as evidenced by *Schreck* and by *Levy*, and in view of Sipos(a) and Sipos(b), and further in view of Bode et al. (Clin Biochem 1986; 19:333-37) ("*Bode*"). Applicant respectfully traverses.

As presented above, *Beck*, *Schreck*, *Levy*, *Sipos*(a), and *Sipos*(b) in combination do not provide disclose or suggest in part "administering the pharmaceutical composition comprising digestive enzymes comprising a lipase, an amylase and a protease" as recited in the pending claims. This deficiency is not cured by *Bode*.

Bode discloses a method for determination of chymotrypsin activity in stools. See page 33, left column, first paragraph. However, *Bode* does not teach or suggest toprovide digestive enzymes to autistic individual based on the test result of chymotrypsin.

Because *Beck*, *Schreck*, *Levy*, *Sipos*(a), *Sipos*(b), and *Bode* in combination do not provide the suggestion or motivation to administer a composition comprising digestive enzymes to treat autistic individuals, and *Beck* in fact teaches away from it, the pending claims are not obvious. Applicant respectfully requests the rejections be withdrawn.

VI. Rejections under 35 USC § 112, first paragraph – Written Description

Claims 53-55, 57-61, 63, 66-69, 71-73, 79, 83-85, 89, 91, 93-101, 107, 110-112, 116-118, 120-127, 133, 136-149, 152-155, 157-160, 162-164, 170 and 172-174 stand rejected under 35 U.S.C. § 112, first paragraph. Specifically, the Office Action asserts:

> [T]he Examiner can find no support for the claimed method of treating such autistic individuals having a self-limiting diet consisting primarily of carbohydrate with a pharmaceutical composition comprising one or more *digestive enzymes*. (Emphasis original).

Applicant respectfully disagrees. Nevertheless, and solely to expedite the prosecution, claims 63, 91, 118 and 155 have been amended to delete the recitation "wherein the autistic individual has a self-limiting diet consisting primarily of carbohydrates." Applicant respectfully requests the rejections on this basis be withdrawn.

VII. Rejections under 35 USC § 112, first paragraph – Scope of Enablement

Claims 53-55, 57-61, 63, 66-69, 73, 83-85, 89, 91, 93-98, 101, 110-112, 116-118,120-124, 127, 136-149, 152-155, 157-160, 162-164 and 169-176 stand rejected under 35 U.S.C. § 112, first paragraph for lack of enablement. Specifically, the Office Action allege on page 19 that:

> [T]he specification, while being enabling for *a method for treating autism in an individual, comprising determining if the individual has a fecal chymotrypsin level less than normal and administering a pharmaceutical composition to the individual if the individual's fecal chymotrypsin level is less than normal, wherein the pharmaceutical composition comprises protease, lipase, and amylase*, does not reasonably provide enablement for a method of treating autism comprising administering a single digestive enzyme or a combination other than at least lipase, amylase and protease, or a method of treating any individual having autism as broadly claimed.

Applicant respectfully disagrees. However, solely to expedite the prosecution, independent claims 63, 78, 91, 118, and 155 have been amended to recite "digestive enzymes comprising a lipase, an amylase and a protease."

Applicant submits the claims as amended are fully enabled and respectfully requests the rejections on this ground be withdrawn.

VIII. Rejection under 35 USC § 112, second paragraph

Claims 53-55, 57-61, 63, 66-69, 71-73, 79, 83-85, 89, 91, 93-101, 107, 110-112, 116-118, 120-127, 133, 136-149, 152-155, 157-160, 162-164, 170 and 172-174 stand rejected under 35 U.S.C. § 112, second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Office Action alleges on page 25-26:

> Independent claims 63, 91, 118 and 155 recite that the autistic individual being treated by the method "has a self-limiting diet consisting primarily of carbohydrates." However, even though not explicitly stated by the claims, the therapeutic method could be said to be primarily directed to the treatment of autistic children. For example, the claims recite the use of CARS (childhood autism rating scale), and the disclosure only provides examples of treatment of children. Because children often do not have full control over their diets, it is unclear how much or to what extent their dietary preferences would be, in fact, self-limiting. This is a subjective measure and the present specification provides no guidance as to what constitutes a self-limited diet as opposed to a diet which is imposed upon the individual. Therefore, the metes and bounds of the claimed invention cannot be readily determined.

Applicant respectfully disagrees. Nevertheless, and solely to expedite the prosecution, claims 63, 91, 118 and 155 have been amended to delete the recitation "wherein the autistic individual has a self-limiting diet consisting primarily of carbohydrates." Applicant respectfully requests the rejections on this basis be withdrawn.

CONCLUSION

The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 23-2415, referencing Attorney Docket 41012-701.301. Early and favorable consideration is respectfully requested, and the Examiner is encouraged to contact the undersigned attorney with any questions or to otherwise expedite prosecution.

Further, none of Applicants' amendments or cancellations are to be construed as dedicating any such subject matter to the public, and Applicants reserve all rights to pursue any such subject matter in this or a related patent application.

Respectfully submitted,

Dated: October 26, 2011 By: _____

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